



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/506,622

12/08/2004

Joachim Kiefer

3799.1003-000

5172

21005

7590

04/14/2009

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

PEZZUTO, HELEN LEE

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

04/14/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/506,622

**Applicant(s)**

KIEFER ET AL.

**Examiner**

Helen L. Pezzuto

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3/13/09, 3/26/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-23, 25, 26, 28-31 and 41-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-23, 25, 26, 28-31 and 41-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

Applicant's amendment to claims 25-26, 41-46, and the addition of claims 51-52 filed in the response on 3/13/09 is acknowledged. Currently, claims 20-23, 25-26, 28-31 and 41-52 are pending in this application.

In light of applicant's 132 Declaration and remarks filed on 3/13/09 and 3/26/09, Suzuki et al. is withdrawn as an applied reference because it does not suggest producing a product from step (c) having at least 10 wt% of polyvinyl-containing phosphonic acid so as to form a membrane having the recited intrinsic conductivity.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 51 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the specific disclosed/exemplified amount of vinyl-containing phosphonic acid in the mixture in step (a), does not reasonably provide enablement for the recited "in the amount sufficient to". The

Art Unit: 1796

specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to enable the invention commensurate in scope with these claims.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 20-23, 25-26, 28-31, and 41-52 are rejected under 35 U.S.C. 103(a) as being unpatentable Formato et al. (US-469) for the reasons of record.

US 6,248,469 to Formato et al. discloses a solid polymer electrolyte membrane having a porous polymer substrate interpenetrated with an ion-conducting material. Suitable polymer substrates include those containing at least one nitrogen, oxygen or sulfur atom in the recurring units as expressed in the present claims (col. 6, lines 22-50; col. 7, lines 1-29; col. 10, lines 9-18). The preferred ion-conducting material includes the instant polyvinylsulfonic acid and polyvinylphosphonic acid (col. 7, lines 10-28; col. 14, lines

Art Unit: 1796

31-41). The resultant membrane has ion-conductivity of greater than 0.1 S/cm (col. 12, lines 58-64). One of the prior art embodiments in producing the membrane comprises the step of preparing the substrate polymer and subsequently impregnating the substrate with the chosen monomers, which are then polymerized in situ to form an IPN membrane (col. 8, lines 30-34; col. 17, lines 22-45). US-469 disclose both vinylsulfonic and vinylphosphonic acid monomers within the scope of the present claims, but does not expressly exemplify the use of both type of monomers as the functional monomers. The examiner is of the position that it would have been obvious to one having ordinary skill in the art to employ both vinylphosphonic acid and vinylsulfonic acid functional monomers for the expected additive result in light of their having been disclosed as suitable functional monomer alternatives by patentees. Absent evidence of unusual or unexpected results, no patentability can be seen in using a mixture of two functional monomers wherein each is used for the same purpose by the patentees. Once the in-situ polymerization of vinylsulfonic acid and vinylphosphonic acid in the presence of a polymer film to form an IPN membrane is suggested, the determination of optimum or workable ranges of the respective components would involve only routine skill in the art. Furthermore, the present claims are presented in a

product-by-process format. Thus, the patentability of the claimed invention is determined based on the product itself, not the method of making it. It is well settled that if the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. Accordingly, when applicant's product and that of the prior art appear to be identical or substantially identical, the burden shifts to applicant to provide evidence that the respective products do in fact differ, and that prior art product does not necessarily or inherently possess the relied upon characteristics of applicant's claimed product.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

Art Unit: 1796

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 20-23, 25-26, 28-31, and 41-52 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16, 18-19, 21, 24-25, 28-29, 36, and 40-43 of copending Application No. 10/506,387. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant product encompasses those recited in the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Response to Arguments***

Applicant's amendment and remarks filed on 3/13/09 have been fully considered. Applicant repeated the argument that the substrate polymer of Formato et al. is materially different from the polymer film of step (a) because it is porous, and therefore, the composite membrane resulting

Art Unit: 1796

from prior art method is also different from the claimed membrane. Applicant further urges that the membrane derived from Formato et al. is not an interpenetrating network as presently claimed. The examiner respectfully disagrees. Counsel is cordially directed to col. 17, lines 41-43, wherein Formato et al. clearly state that an IPN membrane is created in their fourth embodiment, even with the use of a porous polymer substrate. Thus, no structural difference is seen between the respective IPNs. The present claims do not preclude a porous polymer film, and as such the recited polymer is indistinguishable from prior art polymer film. Furthermore, the recited IPN is given the broadest reasonable interpretation that it reads on prior art IPN membrane even though applicant asserts to contain bulk regions of no conductivity, as it is clear that Formato et al. contemplate producing an INP membrane in their fourth embodiment. Hence, it is within the sphere of obviousness of prior art disclosure to produce an IPN membrane as claimed. Accordingly, the examiner's position is maintained.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is



reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen L. Pezzuto/  
Primary Examiner  
Art Unit 1796

hlp